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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/709,502	11/13/2000	Yu-Jih Liu	0918.0050C	4487

7590 03/18/2005  
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EXAMINER
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TRAN, THIEN D

ART UNIT	PAPER NUMBER
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2665

DATE MAILED: 03/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Supplemental

## Office Action Summary

Application No.

09/709,502

Applicant(s)

LIU, YU-JIH

Examiner

Thien D Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-68 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 16-25, 30-40, 45-48 and 54-68 is/are rejected.
- 7) ☒ Claim(s) 12-15, 26-29, 41-44 and 49-53 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-11, 16-25, 31-35, 54-68 are rejected under 35 U.S.C. 102(e) as being anticipated by Stiller et al (U.S Patent No. 6,130,881).

Regarding claims 1, 16, 54, 58, 63, 68, Stiller discloses in a communications network having a plurality of nodes (communication units), hereinafter communication unit, wherein at least one of those units is designated as a routing unit for routing network traffic, a communication unit to transmit and receive messages within said network, col.2 lines 20-37, comprising:

a transmitter to transmit an outgoing message to each neighboring unit of said communication unit, figure 2;

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a receiver to receive an incoming message from said each neighboring unit,  
figure 2;

a memory (storage unit), hereinafter, storage unit, to store network configuration for routing information (connectivity information) relating to said communication unit and corresponding neighboring units, col.7 lines 1-26; and

a CPU (processor) to control said transmission and reception of said outgoing and incoming messages, col.7 lines 10-20, wherein said processor includes: the CPU having network configuration (configuration module) to examine said network connectivity information and designate said communication unit as a relay unit (said routing unit) in response to determining that said communication unit communicates with at least one neighboring unit, col.7 lines 1-25, the relay unit communicating with one of the neighbors in the range of more than one hop away, figure 4, (that is isolated from communications with remaining neighboring units of said communication unit), figure 1, col.8 lines 55-60.

Regarding claims 30, 33, 56, 61, 66, Stiller discloses a communications network comprising:

a plurality of communication nodes (units) to transmit and receive messages within said network, figure 1, wherein each said communication unit includes:

a CPU having software for transmission (status transmission module) to facilitate transmission of a unit status message at a periodic time interval, col.11 lines 37-45;

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the CPU having software (interval module) to dynamically reconstructed the trigger periodic for updated message transmission (adjust said periodic time interval) in response to detecting modifications in network connectivity, col.11 lines 9-12; and

the CPU having software for configuration (configuration module) to determine a status of that communication unit as a routing unit for routing network traffic or as a member unit of a corresponding routing unit in accordance with information contained within received unit status messages, col.7 lines 1-25.

Regarding claims 2, 17, 31, 34 Stiller discloses that the transmitter transmits said outgoing message in the form of wireless signals (radio signals), col.4 lines 15-25.

Regarding claim 3, Stiller discloses that the receiver receives said incoming message in the form of wireless signals (radio signals), col.4 lines 15-25.

Regarding claims 4, 18 Stiller discloses that the processor further includes:

the CPU having software for transmission (status transmission module) to facilitate transmission of an update message (unit status message) at a periodic time interval, col.11 lines 37-45, wherein said unit status message includes unit connectivity information relating to network connectivity of said communication unit, col.7 lines 30-65; and

the CPU having software for reception (status reception module) to facilitate reception of said unit status message from said each neighboring unit and to update said connectivity information within said storage unit in accordance with unit connectivity information contained within each received unit status message, col.7 lines 30-65.

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Regarding claims 5, 19, 57, 62, 67 Stiller discloses that the processor further includes: an interval module to adjust said periodic time interval in response to detecting modifications in network connectivity indicated by said updated connectivity information within said storage unit, col.11 lines 9-12.

Regarding claims 6, 20, 32, 35 Stiller discloses that the interval module further includes: an dynamically adjusting the trigger of updated route message according to the traffic volume (interval adjustment module to increase said periodic time interval) in response to determining that a quantity of neighboring units of said communication unit is equal to said neighboring unit quantity of an immediately preceding periodic time interval, col.11 lines 5-12.

Regarding claims 7, 21 Stiller discloses that the configuration module further includes:

a transmission interval module to maintain a count of unit status message transmissions by said communications unit and to determine when a predetermined hop count (quantity of said unit) status messages has been transmitted, col.9 lines 40-50;

an evaluation module to determine the presence of modifications to said connectivity information within said storage unit during said unit status message transmissions, col.7 lines 11-20; and

a unit status module to determine said status of said communication unit as said routing unit in response to an absence of modifications to said connectivity information as determined by said evaluation module, col.8 lines 5-25.

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Regarding claims 8, 22 Stiller discloses that the unit status module further includes:

a routing status module to designate said communication unit as said routing unit in response to determining that said communication unit communicates with at least one neighboring unit that is excluded from the wireless network (isolated from communications with remaining neighboring units of said communication unit), col.8 lines 54-63;

a current node processing coming message (master status module) to designate said communication unit as a master unit in response to determining that said communication unit and each neighboring unit are in communication with the same units and said communication unit is associated with an identifier superior to identifiers of said neighboring units, figure 3, col.7 lines 30-65; and

a neighboring node (member status module) to designate said communication unit as a member unit of a corresponding routing unit in response to said master status module determining that said communication unit and each neighboring unit are in communication with at least one different unit and said routing status module determining that said communication unit fails to qualify as said routing unit, col.10 lines 30-35.

Regarding claims 9, 23 Stiller discloses that the current node processing coming message (master status module) further includes:

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a routing unit selection module to determine said status of said neighboring units as said routing and member units in response to said communication unit being designated as said master unit, col.8 lines 25-63; and

a status transmission module to facilitate transmission of status information to neighboring designated routing units to inform those units of their designation as routing units by said communication unit serving as said master unit, col.8 lines 25-63.

Regarding claims 10, 24 Stiller discloses that the configuration module further includes:

a link storage unit to store connectivity information relating to routing units; and  
a routing unit configuration module to examine said network connectivity information within said link storage unit in response to said communication unit being designated as said routing unit and to designate said communication unit as a transmission routing unit in response to determining that said communication unit communicates with at least one neighboring routing unit that is isolated from communications with remaining neighboring routing units of said communication unit, col.7 lines 1-25.

Regarding claims 11, 25 Stiller discloses that the transmission routing unit transmits update messages including network connectivity information, and said routing unit configuration module further includes, col.10 lines 18-29:

a message forwarding module to receive an update message from a neighboring transmission routing unit in response to said communication unit being designated as said transmission routing unit and to transmit said received message to neighboring



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routing units to facilitate synchronization of said link storage unit of each said routing unit, col.10 lines 18-29.

Regarding claims 55, 60, 65, Stiller discloses that the network is an ad-hoc wireless communication network, col.3 lines 55-60.

Regarding claims 59, 64, Stiller discloses a wireless communication network including a plurality of communication units, wherein at least one of those units is designed as a relay unit for transmitting and receiving network information comprising the steps of:

examining the network connectivity information and designate said communication unit as a relay unit (said routing unit) in response to determining that said communication unit communicates with at least one neighboring unit, col.7 lines 1-25;

designating the relay unit communicating with one of the neighbors in the range of more than one hop away, figure 4, based on the examination and in response to determining that the communication unit facilitates communication with network communication units, figure 1, col.8 lines 55-60.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 36-40, 45-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stiller et al (U.S Patent No. 6,130,881) in the view of Medin, Jr (U.S Patent No. 6,370,571).

Regarding claims 36, 45 Stiller discloses a communications network comprising:  
a plurality of communication nodes A, D, G forming a first network tier to transmit and receive messages within said network, wherein node B (at least one of said communication units) is designated as a routing unit to form a second network tier to route network traffic, figure 1, and wherein each said communication unit includes:

a CPU having network configuration (configuration module) to determine a status of that communication unit as said routing unit for routing network traffic or as a member unit of a corresponding routing unit, col.7 lines 1-25; and

a routing unit configuration module to determine a status of that communication unit as a transmission routing unit in response to that communication unit being designated as said routing unit, col.8 lines 54-63.

Stiller does not disclose that a communication unit designated as a transmission routing unit to form a third network tier to transmit network information throughout said second and third network tiers. Medin discloses communication network having three tiers, figure 1. Therefore, it would have been obvious to one having ordinary skill in the art to implement the third network tiers to accommodate a large number of communication units in the network.

Regarding claims 37, 46 Stiller discloses that the transmitter transmits said outgoing message in the form of wireless signals (radio signals), col.4 lines 15-25.

Regarding claims 38, 47 Stiller discloses that the configuration module further includes a unit designation module to examine network connectivity information relating to that communication unit and to designate that communication unit as said routing unit in response to that communication unit communicating with at least one neighboring unit that is isolated from communications with remaining neighboring units of that communication unit, col.7 lines 30-65.

Regarding claims 39 Stiller discloses that the routing unit configuration module further includes a routing unit designation module to examine network connectivity information relating to designated routing units stored within a link storage unit of that communication unit and to designate that communication unit as a transmission routing unit in response to that communication unit communicating with at least one neighboring routing unit that is isolated from communications with remaining neighboring routing units of that communication unit, col.8 lines 54-63.

Regarding claim 40 Stiller discloses that the transmission routing unit transmits update messages including network connectivity information, and said routing unit configuration module further includes, col.10 lines 18-29:

a message forwarding module to receive an update message from a neighboring transmission routing unit in response to said communication unit being designated as said transmission routing unit and to transmit said received message to neighboring routing units to facilitate synchronization of said link storage unit of each said routing unit, col.10 lines 18-29.

Regarding claim 48, Stiller discloses that the configuration module further includes:

a link storage unit to store connectivity information relating to routing units; and  
a routing unit configuration module to examine said network connectivity information within said link storage unit in response to said communication unit being designated as said routing unit and to designate said communication unit as a transmission routing unit in response to determining that said communication unit communicates with at least one neighboring routing unit that is isolated from communications with remaining neighboring routing units of said communication unit, col.7 lines 1-25.

#### ***Allowable Subject Matter***

5. Claims 12-15, 26-29, 41-44, and 49-53 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

6. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Thien Tran whose telephone number is (571) 272-3156. The examiner can normally be reached on Monday-Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached on (571) 272-3155. Any inquiry of a general nature

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of relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-2600.

Thien Tran

**DUCHO  
PRIMARY EXAMINER**

A handwritten signature in black ink, appearing to read "Duchow", with a long horizontal stroke extending to the right.

3-14-05